step 22, whereupon the files in memory are prioritized at step 24. The present invention provides for placing the files in an arbitrary priority order before transmission in order to achieve optimum bandwidth utilization. Prioritization is established based on information in the packet headers without any need to

5   move the full file. The rules for file prioritization are optional according to the communication system design, possibly selecting first file-in or shortest file handling or a file designated as having particular significance to be transmitted first. The prioritized files are received into the queue from the ISP at step 26, and a queue event is triggered at step 30. Step 30 also serves to begin the process

10   portrayed in Figure 2B at step 40.

Returning to Figure 2A, step 32 determines if the file being processed represents the last file. If this is the last file, the process stops at step 34. If this is not the last file, the process cycles in a loop to return to step 26 and proceed

15   as described above.

Referring now to Figure 2B, starting step 40 moves to step 42 to set the maximum number of files N able to be received in the queue for each memory buffer and from each ISP. With the buffer queue size established as N_{max}, the

20   system next determines whether the queue is empty at step 50. If the queue is empty, the process moves to step 60. If the queue is not empty, a file is obtained from the queue for processing, e.g., compression, at step 52 and the number of files in the queue is adjusted accordingly. Compression or other processing is

begun at step 54, and the system determines whether the number of files N in

the queue is equal to the maximum number N_{max} at step 56. If so, the system

determines at step 60 whether compression has been completed. If not, the

system returns to step 50. If step 60 determines that compression is complete,

5   transmission is started at step 62 and the number of files N in queue is

decremented accordingly. If not, a return loop to the top of step 60 repeats the

question. After transmission the system determines whether the queue is empty

and no compression is ongoing at step 64. If empty, the process is stopped at

step 66. If the queue is not empty, the process reverts to step 50. It should be

10   noted that compression is an example of a type of processing that can take place

during the file manipulation stage. Other types of processing can take place as

well, either in addition to or instead of the compression. Examples of such

processing can be file reduction, bit manipulation and any kind of content

manipulation on the files.

15

According to the process described above, the system maintains a

substantially stable buffer size and passes files at an efficient rate. Further, by

enabling the flowchart process shown in Figure 2A to operate in parallel time with

the steps shown in Figure 2B, processing proceeds at an efficient speed.

20

Referring now to Figure 3, the invention recognizes that an optimum

number of bits, for example 8 bits, is appropriate for encoding in a wireless

communication link, while another number of bits, for example 7 bits, may be

reasonable for a wired system. After the system starts at step 80, a user of the

system is permitted to change the default length of the encoding string at step

82, and the user's input string length is received in step 84. At decision point 86,

the system determines whether the connection on which communication is

5   occurring is wireless. If the connection is wired, the user selected string length is

input at step 88. If the connection is wireless, the user selected string length is

rejected at step 90 as potentially slowing the process of the system. When the

system either accepts and inputs or rejects the selected user string length, the

system stops.

10

While the present invention is described with respect to specific aspects

and embodiments thereof, it is recognized that various modifications and

variations thereof may be made without departing from the scope and spirit of the

invention, which is more clearly understood by reference to the claims appended

15   hereto.